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**PROGRAM ANALYSIS AND EVALUATION**  
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WASHINGTON, DC 20310-0700

June 30, 2017

To the Army's Functional Area 49 (FA49) officers,

Greetings to the Army's Operations Research/Systems Analysis (ORSA) Community! Over the past several years, I have provided a pseudo-state of the FA49 community letter by writing to newly accessed officers. This year, I am penning my update to our entire community as a means to share my thoughts.

The ORSA career field is in great shape and you are doing incredibly important work. The reason for this is simple – it is each and every one of you. You excel every day at doing what our commanders and leaders need from you...you help them make difficult decisions.

For me personally, the primary tool I use to assess our health is fairly old-fashioned. I ask commanders how we are doing. I, also, use other “hard” data points such as promotion statistics, Voluntary Transfer Incentive Program (VTIP) results, and the Colonel assignment process. However, in the end, my primary source of feedback ranges from Division to Combatant Command commanders and everyone in between.

As the career field proponent, our focus is on developing the talent of each individual member and then ensuring we challenge you with each and every assignment. Over the course of the next few pages, we will outline how we do this and where we need your help. The fact that we are strong today does not guarantee we will be strong tomorrow. We must maintain our current, highly-regarded capabilities, while adapting to changes (near-term and long-term) to continue to deliver value.

We are the ultimate “crowd-sourced” functional area. Our success is completely dependent upon each of you helping each other. Our crowd-sourcing cuts across two-dimensions: the proponent functions (accession, development, distribution) and your operational mission. While this letter focuses on the proponent functions, it does overlap with what you do in your operational mission. Throughout this document, I will share some thoughts on how our community or “crowd” can individually and collaboratively support the challenges and opportunities discussed. If you have thoughts or can help, contact our proponent office. For your operational mission, we rely on you to continue to self-organize and network to share knowledge and build capability.

We have reached a pivotal point as we change how we support our Army, and each of you is part of the plan to help move us in this new direction. I have listened to you as we attempt to describe this shift towards higher reliance on data science. The debate has centered on the pull between new technical “tools” and the more traditional “tools” of problem solving. In the end, my belief is that we must use both. We are not turning our backs on leadership, communication, assessments, or modeling. Instead, we are

adding analytic and visualization tools that will enable commanders to leverage data when making decisions. The feedback from commanders has been clear – they want this adaptation and they want it faster.

Recently, I was approached by RAND who is writing the History of Operations Research in the United States Army, Volume IV, covering 1995 to the present. As I reflected on the work done by past and present Army ORSAs, it has been nothing short of remarkable.

Starting in 2001, we made a concerted effort to focus the career field on the business of warfighting and assessments. We permeated throughout the combat effort and made ourselves valuable to every operational commander. We always have to remember we support our wartime commanders, both as individual ORSAs who are part of their organic staff, and also from key analytical agencies such as Center for Army Analysis (CAA), TRADOC Analysis Center, and the Army Materiel Systems Analysis Activity. Supporting our operational forces has been, and will always be, our #1 priority.

Starting in 2011, we made our latest major shift in two directions. This shift is about expanding our skill sets into new *technical areas* and applying our skills across different *operational fields*. For the technical areas, we are rapidly becoming the Army's organic experts in data science, data analytics, data visualization, and other big data specialties. We are leveraging these new technical skills to apply our tradecraft rapidly in the operational fields of Cyber, Special Operations, Communications, Intelligence, and Logistics, while increasing our support to readiness assessments. These technical and operational expansions are natural extensions of our traditional support to planning and operations.

Our ORSAs continue to be viewed not just as experts in the operations research domain, but also as key leaders across our Army. Last year, MG Wins was selected as our first ORSA to command at the two star general officer level and BG Ulrich was selected to command the Army's Operational Test Command. Additionally, the Army recently announced BG Gingrich will be the J8 of USCYBERCOM. Our ORSA Colonels, in addition to working in important FA49-coded positions, also continue to be selected for key non-FA49-coded leadership positions. You are, and will continue to be, viewed as leaders – and not just staff officers – in the eyes of the Army's senior leadership.

### *Our Mission*

Although the information environment has changed dramatically in the last decade, our mission to “**help leaders make difficult decisions**” remains unchanged. While our mission is simple to state, it is remarkably difficult to execute.

As the proponent, we “**produce and manage talent that helps leaders make difficult decisions.**” Our people are at the heart of everything we do and thus the importance of

talent management: how we access, educate, train, promote, and distribute our population. To accomplish this, we need everyone's help; it is a team sport and you are all on the team.

### Accessions

Our future depends upon the quality of the young officers we bring in each year. We all have to identify the best talent in the Army and challenge them to become a FA49. You are closest to the young Lieutenants and Captains who will be our future.

We had another very good year, with the two rounds of the VTIP now complete. We accessed 61 very talented officers into our career field. Many of them already hold graduate degrees through utilization programs like the United States Military Academy and the Graduate School Option, and 11 were slated for FA49 graduate education opportunities in the fall of 2017. Some will be assigned to units right away, where they will make an immediate impact.

Just this past year, we stood up a recruiting committee to help us ensure we are bringing in the talent we need. They are making strides on outreach and marketing, looking at engagements with cadets and Career Course Captains. They will also identify and assess the factors that motivate officers to transfer – knowledge we can use in our future recruiting efforts.

We continue to need help recruiting a diversity of officers, including branch diversity, especially from Signal, Military Intelligence, Special Forces, and Logistics branches. As we expand our domain expertise, we need to deepen our operational experience in these areas.

I challenge each of you to reach out to several talented officers and discuss the value of becoming an ORSA, then work with our proponent office to help us better target our recruiting activities. I am particularly interested in ensuring that all demographic groups fully understand the opportunities we offer so we can get the most talented officers, not just those that happen to know about the FA49 career field.

Once we acquire talented young officers, we must continue to develop them. Ensuring we have the right officers in the right developmental programs is one of the top priorities for the proponent office. To do this, we must closely manage graduate school programs, Intermediate Level Education (ILE), the FA49 Qualification Course (Q Course), Training with Industry (TWI), and Continuing Education.

### Education and Training

Education and training are central to our talent management and we invest heavily in both; doing so means that we have to accept lower manning levels and assume risk in some of our institutional assignments.

As we broaden our “tool box” to emphasize data science skills, we have changed how we allocate graduate school degrees, modified the purpose of the Q Course, and built up a robust continuing education program. We are also looking at changes to the ORSA Military Applications Course (MAC) – perhaps not in content, but in frequency –to free up resources and time for other training opportunities.

- **Education** – We get approximately 10 fully funded Advanced Civilian Schooling (ACS) slots each year, but through the tremendous work of the FA49 Education Committee we are sending more than 25 officers annually to graduate school. We are also doing a great job targeting graduate school programs to address the needs of our emerging technical and operational domains. The FA49 community selected 28 officers to attend graduate school in Fiscal Year 2017 (FY17), including 4 for PhDs.
  - We continue to leverage generous partnerships like the Dean’s Fellowship at the University of Southern California; these partnerships are important and they only exist because ORSAs have gone out and created, nurtured, and sustained them.
  - We continue to lean heavily on the Air Force Institute of Technology (AFIT) and Naval Postgraduate School (NPS); we are reviewing our agreements with both institutions to allow more flexibility in their graduate programs for the 14 officers per year we put through those schools.
  - We are streamlining the process for selection and slating officers for ACS; the goal is to ensure every officer has an opportunity to earn an advanced degree.
  - We also continue to capitalize upon the great partnerships our analytical agencies have with Kansas State, New Mexico State University, and George Mason University to enable our ORSAs to get graduate degrees in tandem with their military service.
- **Qualification Course** – We modified the Q Course content this year to include an intensive one-week section focused on data science skills.
  - We need feedback from you and your leadership. How can we continue to evolve the Q Course to provide you a better program? What does your leadership desire in a high-quality graduate?
- **Continuing Education (FY17)** – FA49 proponent has invested over \$135,000 to purchase training in FY17 and acquired additional no-cost opportunities to expand the Continuing Education program. It has been a great success, but we have to build upon it. Examples of courses offered to date are:

<b>Company</b>	<b>Title of Training</b>	<b>Location</b>	<b># Trained to date</b>
Accelebrate	Intro to R	Pentagon, CAA (FA49 funded); NETCOM, ATEC (unit-funded)	~100 officers and civilians
MIT Professional X	Data Science: Data to Insights	Online	15
University of Southern California	Essentials of Data Informatics	Online	30
University of South Carolina	Business Analytics short course	Columbia, SC	20
The Data Incubator	Data Science Foundations	FA49 Q Course, Ft. Lee, VA	30
RStudio	Monthly Webinars (varied topics)	Online	Unlimited
Data Science Center of Education	DSCOE Inferno; tutorials	AORS, MORS, Accelebrate training classes, Q Course	Unlimited

The goal is to have the best continuing education program in the Army. We are setting the foundation through a mixture of training with industry, online courses, certifications, targeted in-person courses, software training, and facilitated sharing of experiences. We need your continued feedback and insights to ensure a beneficial program.

ORSA MAC will continue to be our course for initial training, and we work hard to continually improve it by incorporating your feedback. Because of the larger number of officers pursuing graduate degrees, we are looking at decreasing the frequency of ORSA MAC and using the re-allocated resources to pilot a course focused on data visualization and data analytics. We, through the Army Logistics University, need your help to determine the proper length and content.

We continue to modify our Training with Industry (TWI) program. We are adding Amazon Web Services (AWS) to our menu of opportunities in FY18 and solidifying and evolving our relationships with existing partners – IBM, Digital Globe, Gallup, and Verizon. TWI is crucial for us to stay connected to industry leaders. While TWI is a “broadening” opportunity for many other career fields, it is critical to developing specific ORSA talents that we need to support the warfighter.

The education committee continues to drive important decisions shaping our graduate education programs and selection. We rely heavily on the community to determine the right programs, schools, and skills to prepare our officers for success. Our goal this year is to have a better research tie-in between Army commands and ACS students, as well as follow-on utilizations that capitalize upon the particular degree or skillset attained.

## *Mentorship*

The key to talent management is mentorship – we can do better than we are doing now, and we will continue to improve. Effective mentorship takes time and effort, especially since we are scattered across the globe. Through coaching and mentoring, we can understand your talents, needs, and desires. We cannot effectively educate or assign you if we don't know more about you, now and in the future.

Mentorship is a two-way street. Don't wait for someone to reach out to you – reach out to senior officers. Only when we know each other can we ensure we uniquely develop our individual talents to maximize our collective capabilities.

We have to put the right officers into the right jobs based upon the unique talents of the officer and the unique skills required by the billet every time; we call this our “Right Officer, Right Job” philosophy. Every assignment and education opportunity is unique, every assignment is important – those we support cannot afford for us to misfire in the assignment process.

## *Promotion Results*

Our ORSAs continue to get promoted above overall Army averages. The FY16 FA49 primary zone (PZ) promotion rate to MAJ was 81.5 percent, above the average of 70.8 percent for our competitive category. The newly released FY17 FA49 PZ promotion rate to LTC was 75.8 percent, above the category average of 66.9 percent. To the grade of Colonel in FY16, our PZ promotion rate was 61.9 percent, the highest of any branch or functional area in the Army, and well above the competitive category average of 38.9 percent.

We also did very well with Above the Zone promotions to LTC in FY17. This is an indication that you need to keep performing well and you can get promoted.

Boards promote based upon performance and potential and FA49 officers perform very well. We do not have designated key billets, and we do not participate in the Centralized Selection List process. This is by design as it gives us enormous flexibility in how you are assigned. What matters is how well you do in that job and, even more important, how you demonstrate potential for future, more difficult assignments. Every job you are assigned is important; do it well, and the Army will recognize your performance.

## *Assignments*

Managing your career path is a team effort between you, your assignment officer, FA49 senior leaders, and the proponent office. This is hard work that has to take into account the needs of the Army, your development, your personal goals, and promotion



timelines. For instance, before we send an officer to an educational or training opportunity, we review your career timeline to maximize your potential for promotion.

As we stated above, one of our guiding principles is to invest heavily in our education and training – one of the costs of doing that is we sometimes leave billets unfilled. Having holes in our formations to educate and train our ORSAs is a high cost, but one we are willing to pay. We distribute this shortage through our ORSA manning guidance, which prioritizes our operational billets. Therefore, the burden for our robust education program falls on the generating force and our larger analytical agencies. We updated the ORSA manning guidance this year; if you have not seen it, it's posted on our milBook site.

Over the past year, these are some of the updates we have made that affect assignments and the ORSA career track:

1. Storyboard: In November 2016, thanks to the efforts of our FA49 Qualification Course staff and students, the Talent Management Task Force, Office of Economic and Manpower Analysis, and Council of Colonels, we adopted our storyboard to support the Army's talent-based branching initiative and future talent acquisition strategy.
2. Domain Partnerships: We have strengthened our domain partnerships with Intelligence (INSCOM, ICOE, Army G-2, DIA), Cyber (CYBERCOM, ARCYBER, and NETCOM), Logistics (AMC), and Special Operations (SOCOM, TSOCs, and others); over the coming year we will deepen our partnership in the Readiness domain (FORSCOM, Army G-3, Combat Readiness Center).
3. Updated DA PAM 600-3: We submitted revised text to support officers seeking TS-SCI clearances to promote flexibility in assignments for Joint, nominative, and other billets. We will post the updated version to milBook once it has completed the staffing process.
4. Data Science: We had multiple efforts to expand our skill sets in this area, from providing training to drafting our data science vision. Additionally, as we expand our skill sets in this area, we are growing our institutional capability to track specific skill sets.

Some officers will specialize in a particular technical field, some in a particular operational domain, and others will have a breadth of both. Having this broad array of talent is what makes us strongest as a career field. There is no right answer to the question, "what assignment should I take?" Regardless of what assignment you get, the single most important factor for both promotion and future assignment is to provide value.

That said, I do want to point out that in DA PAM 600-3, we explicitly state that an officer must have had an operational assignment as an FA49 to be "best qualified" for

promotion selection. Since we broadly define “operational,” a wide array of assignments will meet this requirement, but I ask that you remain true to the intent of why this is important – we can never lose sight that we are military ORSAs who provide a technical skill in operational domains. Nothing is more important than supporting the operational force. Therefore, our skills in the assessment domain, with a focus on campaign planning and operational assessments, will always remain important.

As we assign you over the years, you will find yourself in one-deep positions that I refer to as “island ORSA” billets (generally three ORSAs or fewer), as opposed to Army analytical communities where we have many ORSAs and a strong support structure. If you are in one of these “island ORSA” billets, your ability to operate in an ambiguous environment, be entrepreneurial in spirit, and lead diverse groups will be keys to your success.

Finally, it is important that you understand that my top two priorities in assigning officers each year are: 1) any operationally deployed ORSA billet; and 2) ORSA positions in Divisions and Corps.

### Leadership and Communication Skills

Our ORSAs often operate in small numbers, across wildly diverse functions, and often as the junior person on a staff. We have to ensure we are producing ORSAs who are competent leaders that are not only technically proficient across a range of skills, but also have tremendous interpersonal and communication skills. Your ability to lead cross-functional teams to solve difficult challenges is your single most important skill. Your ability to communicate clearly, both in writing and orally, is perhaps the second most important skill you have to develop for you to succeed as a Colonel. Lead whenever possible. Never pass up an opportunity to write or speak. Do not wait until you reach the most senior levels of our profession to develop these skills.

It is our professional obligation to write and document what we are doing to inform the broader analytic community and ourselves. I worry that as combat operations wind down, we will forget over time everything we learned and developed for supporting theater-level warfare. So, publishing includes not only presentations at Operations Research symposiums, but the broader defense and military journal audience. Part of the education process is to not only cross-level experiences amongst ourselves, but more important, to educate and inform operational commanders on what we can do for them. Some opportunities include:

- Army Operations Research Symposium (AORS), Military Operations Research Symposium (MORS), and other professional societies
- milBook, blog/communities of practice; Data Science Center of Education (DSCOE)



- Presentations by our TWI participants; work by our Big Data and Intelligence communities at multiple conferences and summits in the National Capital Region and beyond

I ask that you join the FA49 ORSA milBook site so that you can read what others in our functional area are doing (<https://www.milsuite.mil/book/groups/fa49-orsa>), but remember, this site requires user input to remain relevant. Develop a habit and goal of publishing. If you are in graduate school, we need you to let the rest of the ORSA community know what you are learning and in what direction academic experts are moving. Remember, helping leaders make good decisions is a team sport.

### Enhance our ORSA Network – Crowd Sourcing and Sharing

It is amazing how the entire community came together to support our teammates who forward deployed to a combat environment. The challenge is how to continue that teamwork as combat operations wind down. It is important that our ORSAs at the "front" know how and where to get help, and that they are not limited to their individual skill set. We must leverage society's culture of "connectedness" to help us in this endeavor.

The big revolution that has occurred in the outside world over the past decade has been the emergence of sharing and crowd sourcing to solve problems. Unfortunately, in the military we like "walls." As ORSAs, we have to break down these walls as they are the single biggest obstacle to our success and are the one thing I worry about the most. The good news is we are making progress, small to date, but progress nonetheless.

The ORSA Sandbox at <https://PAE-ORSA.org>: This is our developmental Data Science for big data "compute on demand" space on AWS, offered to you to support your analysis. This space requires login credentials and can be used for unclassified data. Tools currently available include RStudio and Shiny, and we are working to expand the capability set based on user needs. We welcome your feedback on what tools you would like added. Contact the FA49 PPO to request access and propose additions to the environment: [usarmy.pentagon.hqda-dcs-g-8.list.fa49-ppo@mail.mil](mailto:usarmy.pentagon.hqda-dcs-g-8.list.fa49-ppo@mail.mil).

This unclassified data science space augments our unclassified//FOUO AWS environment, which we are accrediting now under Risk Management Framework (RMF) to host our authoritative PA&E data systems. When we are accredited, you will be able to use our AWS FOUO space and data with the same Data Science tools for FOUO analyses. Early in FY18, we will complete the initial cloud hosted capability set with the classified capability. This represents a technology-driven leap ahead; we need your good ideas about what capabilities and data you want to analyze.

- Leveraging Each Other: There are myriad examples across our community of ORSAs working together to breakdown stovepipes, share data and lessons learned,

and glean meaningful insights to support their commanders. Recently, our ORSA team at ARCYBER figured out how to use cloud sites and other sharing tools to get students at AFIT and NPS working on real world problems. This enables three ORSAs at ARCYBER to produce like twenty. We need much more of this collaboration as it is the secret to our future success – leveraging everyone in our ORSA community to solve problems jointly across the Army.

### Professional Reading

Entrepreneurship has traditionally been defined as the process of designing, launching, and running a new business, and we have recently seen new ideas transform many industries. All ORSAs can bring an entrepreneurial attitude to the force because of our natural curiosity as problem solvers. Many people do not associate entrepreneurship with large bureaucratic organizations. I, however, believe that our ORSA cells can and should function as “pockets” of entrepreneurship where we seek out new problems and we find solutions.

Professional reading is one way to find novel approaches to the complex problems faced by our commands. The two books I recommended last year are good guides (“A Curious Mind” by Brian Grazer and “The Lean Startup” by Eric Ries).

This year, two of the books that I have read that have been important in shaping how I perceive the world are “Thank You for Being Late” by Tom Friedman and “The Inevitable: Understanding the 12 Technological Forces That Will Shape Our Future” by Kevin Kelly. One of the points in Tom Friedman’s books is that “all of us are smarter than any one of us.” Hence my focus this year on sharing and crowd sourcing.

You will also find attached a non-technical reading list of other books I have found helpful over the past thirty years. This is not mandatory reading, but some of you may also find these books assist you in seeing the world from a different angle.

### Conclusion

Over the course of the next several years, we are going to have to roll up our sleeves and support our functional area. Our proponent is small – we have no center of excellence, no dedicated doctrine writers, and minimal infrastructure. We survive and thrive as a “self-service, crowd-sourcing” organization. Work done by the Center for Army Analysis in preparing our deployed analysts is invaluable and the work done by our education committee has made the ORSA graduate school program the best in the Army. We are trying to build upon this and create what will be the best Continuing Education Program in the Army – we are only at the beginning of this new effort and we will need your help.

You are bringing us fresh thoughts and ideas, recent operational experience, diverse education backgrounds, and a much higher competency on the newest social media

forums. As we progress, remember this is a “team sport” – we must collaborate, cooperate, and communicate to succeed. If there is an issue in the functional area that you believe warrants our attention, I encourage you to reach out to me, MG Wins, BG Gingrich, BG Ulrich, any ORSA Colonel, or utilize our proponent office: COL Dan Shrimpton, Ms. Karen S. Miller, or MAJ Cardy Moten. MAJ Nate Riedel from HRC will guide you through your assignments and shepherd our new ORSAs through the VTIP process. Thanks again for everything you are doing to make the Army better.

Together, we can make ORSAs as valuable to leaders over the next decade as they have been in the past decade.



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*This reading list provides a menu of books that you can choose from to expand your ability to think strategically. It purposefully does not focus on technical or mathematical subjects, instead focusing on providing a knowledge base of context. It is in no particular order.*

The Singularity Is Near by Ray Kurzweil (2005, 652 pages): This is a book about the intersection of technology and humans, with what it portends is possible; Ray Kurzweil is a “futurist” and is currently working for Google as their Director of Engineering, where he says his job is to “make the company’s computers as smart as humans — smarter, actually — when it comes to natural language understanding.”

The Power Broker by Robert Caro (1974, 1,336 pages): This book is about the accumulation, use, and abuse of power using the building of infrastructure in New York over a forty year time horizon. It is about politics and bureaucracies work at the state- and local-levels.

The Passage of Power by Robert Caro (2012, 620 pages): This book is about how power, bureaucracies, and politics work at the national level using Lyndon Johnson’s ascent to the presidency over a five-year period and culminating with the days following the Kennedy assassination. It is a case study on how things get done, or don’t get done at the federal level.

Duty: Memoirs of a Secretary at War by Robert Gates (2014, 614 pages): This book is about how power, bureaucracies, and politics work in the Department of Defense. It is a modern day case study on how the Department of Defense operates.

Prodigal Soldiers by James Kittfield (1995, 478 pages): This book is about how the leaders of the U.S. military emerged from the ashes of the Vietnam War and rebuilt it, culminating with Desert Storm. It is a perfect case study for how individuals matter, how our institution the military works, and the role of our mid-level and senior officers.

A Savage War of Peace by Alistair Home (1977, 624 pages): This book is about insurgencies (Algerians) and counterinsurgencies (French), written by a British author with first hand access to the participants. It is a case study in understanding the brutality, futility, and pragmatism of what is occurring in the Middle East and in other parts of the world today. It is also a fascinating look into the history of Europe in the 1960s, history that is part of where Europe is today.

The Idea of Pakistan by Stephen Philip Cohen (2004, 367 pages): This book is about how power, religion, nationality, and external actors influence Central Asia. Pakistan is a nuclear state that has alternated between democracy and military dictatorships. It is a good case study for understanding the international environment in an often misunderstood part of the world.

Thank You for Being Late by Thomas L. Friedman (2016, 496 pages): This book is about the intersection of computing power, economic interdependencies, and climate change. In particular, his discussion on what happened in 2007 that has enabled the big data revolution and its impact on society provides for interesting case studies. Additionally, his discussion of how “open source” software has fundamentally altered how problems are solved should be of particular interest.

Curious Mind by Brian Grazer (2015, 320 pages): This book is about how to think and expand your mind. It offers the author’s experience for what he calls an underappreciated virtue – curiosity – and he discusses how solving problems becomes easier if you view the world through many lenses.

The Lean Startup by Eric Ries (2014, 336 pages): This book is about how to build an entrepreneurial spirit in yourself and your organization, even if your organization is a part of a much larger bureaucracy. It is a guide to small unit leadership for leaders who want to solve problems.